

outlined in the *INEEL Comprehensive Facility and Land Use Plan* (DOE 1997). Activities would also be consistent with DOE guidance on facility and land use planning (DOE 1996). During the period of facility disposition, most existing INEEL waste disposal sites will likely be closed. New site(s) to provide capacity for INEEL wastes may be required and could be developed inside or outside the fenced INTEC boundary based on site suitability factors. Future disposal capacity and potential siting issues are outside the scope of this EIS and would be reviewed as part of appropriate environmental and permitting activities when a need for additional capacity is identified.

### 5.3.2 SOCIOECONOMICS

Activities associated with the ultimate disposition of HLW *management* facilities could result in potential impacts to the socioeconomics of the INEEL region. Two categories of disposition are considered. The first involves the disposition of the various proposed new facilities that are required to support the waste processing alternatives. The second category covers the disposition of existing facilities. For each facility or group of facilities, DOE has characterized impacts in terms of total employment (direct and indirect) and income or wages (total regional earnings) that would be generated from the disposition of each facility.

The methods used to estimate employment and income levels are consistent with those used to estimate construction and operational employment and income levels described in Section 5.2.2. However, while employment and income levels for construction and operations are reported for the peak year, the employment and income levels for disposition activities are reported as either totals for the life of the activity, or as maximum annual employment and total income. For the proposed facilities that are grouped by a given alternative, employment and income levels are reported as totals. In the case of existing facilities, estimated annual employment and income levels are reported. During disposition activities, the durations of discrete project elements are relatively short, and activities do not always occur sequentially. Thus, peak year employment and income levels are not as meaningful as they would be for longer-term

operations. However, employment associated with disposition is included in Appendix C.1.

*Since the publication of the Draft EIS, Census 2000 and related data have been incorporated into the socioeconomic analyses. Population figures, housing characteristics, labor information, and economic multipliers (such as employment and earnings multipliers) have been updated to reflect the most current socioeconomic environment in the region of influence.*

#### 5.3.2.1 Proposed New Facilities Associated with Waste Processing Alternatives

DOE has estimated the employment and income levels that would result from the disposition of the proposed new facilities needed to support waste processing alternatives. Table 5.3-1 presents these estimates by alternative and by proposed projects (which would be performed in yet-to-be-designed facilities). In general, employment and income levels required for facility disposition would be similar to the levels estimated for construction. Potential impacts would occur over shorter periods of time and would neither occur continuously nor simultaneously. The potential impacts to population and housing, community services, and public finance would be the same as described in Section 5.2.2 for construction.

#### 5.3.2.2 Existing Facilities Associated with High-Level Waste Management

The facilities in this group are those that have been used at the INTEC to generate, treat, and store HLW. Because of the number of facilities involved, DOE has organized them in functional groups for purposes of analysis. DOE has analyzed the potential socioeconomic impacts of decontaminating and decommissioning these facilities. Table 5.3-2 estimates the total employment and regional income for the Tank Farm and bin sets for all five disposition alternatives. Table 5.3-3 summarizes annual employment and income by facility group for the facility disposition alternatives in Table 3-3.

**Table 5.3-1. Summary of employment and income from disposition of facilities that would be constructed under the waste processing alternatives.<sup>a,b</sup>**

Number	Project description	Duration of disposition activity <sup>c</sup> (years)	Employment			Total earnings ( <i>Dollars</i> ) <sup>d</sup>
			Direct <sup>c</sup>	Indirect	Total	
Continued Current Operations Alternative						
P1A	Calcine SBW including New Waste Calcining Facility Upgrades (MACT) and Storage Tanks	2	58	56	110	4,400,000
P1B	Newly Generated Liquid Waste and Tank Farm Heel Waste Management	1	48	46	94	3,600,000
<b>Peak Year Employment (2018)</b>			58	56	110	4,400,000
Full Separations Option <sup>e</sup>						
P9A	Full Separations	3	220	220	440	17,000,000
P9B	Vitrification Plant	3	72	70	140	5,400,000
P9C	Class A Grout Plant	2.5	120	120	230	9,000,000
P18	Remote Analytical Lab	2	88	85	170	6,600,000
P24	Vitrified Product Interim Storage	2.8	31	30	61	2,300,000
P27	Grout Disposal	2	140	130	270	10,000,000
P25A	Packaging and Loading Vitrified HLW at INTEC for Shipment to NGR	1	2	2	4	150,000
P35D	Class A Grout Packaging	2	30	29	59	2,300,000
P59A	Calcine Retrieval and Transport	1	160	160	320	12,000,000
P118	Separations Organic Incinerator	1	2	2	4	150,000
P133	Waste Treatment Pilot Facility	2	45	44	89	3,400,000
<b>Peak Year Employment (2036)</b>			790	760	1,600	59,000,000
Planning Basis Option						
P1A	Calcine SBW including New Waste Calcining Facility Upgrade	2	42	41	83	3,200,000
P1B	Liquid Waste Tank Farm	1	48	46	94	3,600,000
P59A	Calcine Retrieval and Transport	1	160	160	320	12,000,000
P23A	Full Separations	3	220	220	440	17,000,000
P23B	Vitrification Plant	4	78	76	150	5,900,000
P23C	Class A Grout Plant	4	110	100	210	8,100,000
P24	Vitrified Product Interim Storage	2.8	31	30	61	2,300,000
P25A	Packaging and Loading Vitrified HLW at INTEC	1	2	2	4	150,000
P18	New Analytical Laboratory	2	88	85	170	6,600,000
P118	Separations Organic Incinerator	1	2	2	4	150,000
P133	Waste Treatment Pilot Facility	2	45	44	89	3,400,000
<b>Peak Year Employment (2036)</b>			660	640	1,300	50,000,000

**Table 5.3-1. Summary of employment and income from disposition of facilities that would be constructed under the waste processing alternatives<sup>a,b</sup> (continued).**

Number	Project description	Duration of disposition activity <sup>c</sup> (years)	Employment			Total earnings ( <i>Dollars</i> ) <sup>d</sup>
			Direct <sup>c</sup>	Indirect	Total	
Transuranic Separations Option <sup>e</sup>						
P18	New Analytical Lab	2	88	85	170	6,600,000
P27	Class A/C Grout in New Waste Disposal Facility	2	220	220	440	17,000,000
P39A	Packaging and Loading TRU at INTEC for Shipment to the Waste Isolation Pilot Plant	1.5	7	7	14	530,000
P49A	TRU-C Separations	3	150	140	290	11,00,000
P49C	Class C Grout Plant	2	93	90	180	7,000,000
P49D	Class C Grout Packaging and Shipping to INEEL Landfill	2	57	55	110	4,300,000
P59A	Calcine Retrieval and Transport	1	160	160	320	12,000,000
P118	Separations Organic Incinerator	2	2	2	4	150,000
P133	Waste Treatment Pilot Facility		45	44	89	3,400,000
<i>Peak Year Employment (2036)</i>			730	710	1,400	55,000,000
Hot Isostatic Pressed Waste Option						
P1A	Calcine SBW including New Waste Calcining Facility Upgrades (MACT) and Storage Tanks	2	42	41	83	3,200,000
P1B	Newly Generated Liquid Waste and Tank Farm Heel Waste Management	1	48	46	94	3,600,000
P18	Remote Analytical Lab	2	88	85	170	6,600,000
P59A	Calcine Retrieval and Transport	1	160	160	320	12,000,000
P71	Mixing and HIPing	5	200	190	390	15,000,000
P72	HIP HLW Interim Storage	3	150	150	300	12,000,000
P73A	Packaging and Loading HIP Waste at INTEC for Shipment to a Geologic Repository	2.5	7	7	14	530,000
P133	Waste Treatment Pilot Facility	2	45	44	89	3,400,000
<i>Peak Year Employment (2036)</i>			450	440	890	34,000,000
Direct Cement Waste Option						
P1A	Calcine SBW including New Waste Calcining Facility Upgrades (MACT) and Storage Tanks	2	42	41	83	3,200,000
P1B	Newly Generated Liquid Waste and Tank Farm Heel Waste Management	1	48	46	94	3,600,000
P18	Remote Analytical Lab	2	88	85	170	6,600,000

**Table 5.3-1. Summary of employment and income from disposition of facilities that would be constructed under the waste processing alternatives<sup>a,b</sup> (continued).**

Number	Project description	Duration of disposition activity <sup>c</sup> (years)	Employment			Total earnings ( <i>Dollars</i> ) <sup>d</sup>
			Direct <sup>c</sup>	Indirect	Total	
Direct Cement Waste Option (continued)						
P59A	Calcine Retrieval and Transport	1	160	<i>160</i>	<i>320</i>	<i>12,000,000</i>
P80	Mixing and FUETAP Grout	3	160	<i>160</i>	<i>320</i>	<i>12,000,000</i>
P81	Unseparated Cementitious HLW Interim Storage	3	290	<i>280</i>	<i>570</i>	<i>22,000,000</i>
P83A	Packaging & Loading of Cement Waste at INTEC for Shipment to a Geologic Repository	3.5	7	7	14	<i>530,000</i>
P133	Waste Treatment Pilot Facility	2	<i>45</i>	<i>44</i>	<i>89</i>	<i>3,400,000</i>
<i>Peak Year Employment (2036)</i>			<i>420</i>	<i>400</i>	<i>820</i>	<i>31,000,000</i>
Early Vitrification Option						
P18	Remote Analytical Lab	2	88	85	170	<i>6,600,000</i>
P59A	Calcine Retrieval and Transport	1	160	<i>160</i>	<i>320</i>	<i>12,000,000</i>
P61	Vitrified HLW Interim Storage	3	250	<i>240</i>	<i>490</i>	<i>19,000,000</i>
P62A	Packaging/Loading Vitrified HLW at INTEC for Shipment to a Geologic Repository	3	10	10	20	<i>750,000</i>
P88	Vitrifying SBW and Calcine including MACT Upgrades	5	120	<i>110</i>	<i>230</i>	<i>8,800,000</i>
P90A	Packaging & Loading Vitrified SBW at INTEC for Shipment to the Waste Isolation Pilot Plant	1.5	7	7	14	<i>530,000</i>
P133	Waste Treatment Pilot Facility	2	<i>45</i>	<i>44</i>	<i>89</i>	<i>3,400,000</i>
<i>Peak Year Employment (2036)</i>			<i>320</i>	<i>310</i>	<i>630</i>	<i>24,000,000</i>
Steam Reforming Option						
<i>P13</i>	<i>New Storage Tanks</i>	<i>2</i>	<i>19</i>	<i>18</i>	<i>37</i>	<i>1,400,000</i>
<i>P59A</i>	<i>Calcine Retrieval and Transport</i>	<i>1</i>	<i>160</i>	<i>160</i>	<i>320</i>	<i>12,000,000</i>
<i>P117A</i>	<i>Calcine Packaging and Loading to Hanford</i>	<i>2</i>	<i>52</i>	<i>50</i>	<i>100</i>	<i>3,900,000</i>
<i>P2001</i>	<i>NGLW Grout Facility</i>	<i>1</i>	<i>16</i>	<i>15</i>	<i>31</i>	<i>1,200,000</i>
<i>P35E</i>	<i>Grout Packaging and Loading for Offsite Disposal</i>	<i>2</i>	<i>30</i>	<i>29</i>	<i>59</i>	<i>2,300,000</i>
<i>P2002A</i>	<i>Steam Reforming</i>	<i>1</i>	<i>72</i>	<i>70</i>	<i>140</i>	<i>5,400,000</i>
<i>Peak Year Employment (2036)</i>			<i>280</i>	<i>270</i>	<i>550</i>	<i>21,000,000</i>

Table 5.3-1. Summary of employment and income from disposition of facilities that would be constructed under the waste processing alternatives <sup>a,b</sup> (continued).

Number	Project description	Duration of disposition activity <sup>c</sup> (years)	Employment			Total earnings ( <i>Dollars</i> ) <sup>d</sup>
			Direct <sup>c</sup>	Indirect	Total	
Minimum INEEL Processing Alternative <sup>f</sup>						
P18	Remote Analytical Lab	2	88	85	170	6,600,000
P24	Remote Analytical Lab	2.8	31	30	61	2,300,000
P25A	Packaging and Loading Vitrified HLW at INTEC for Shipment to NGR	1	2	2	4	150,000
P27	Vitrified Product Interim Storage	3	140	130	270	10,000,000
P59A	Calcine Retrieval and Transport	1	160	160	320	12,000,000
P111	SBW and Newly Generated Liquid Waste Treatment with CsIX to CH TRU Grout and LLW Grout	1	100	100	210	7,800,000
P112A	Packaging and Loading CH-TRU for Transport to the Waste Isolation Pilot Plant	4.5	7	7	14	530,000
P117A	Packaging and Loading Calcine for Transport to Hanford	2	52	50	100	3,900,000
P133	Waste Treatment Pilot Facility	2	45	44	89	3,400,000
Peak Year Employment (2026)			320	310	640	24,000,000
Vitrification without Calcine Separations Option						
P13	New Storage Tanks	2	19	18	37	1,400,000
P18	New Analytical Laboratory	2	88	85	170	6,600,000
P59A	Calcine Retrieval and Transport	1	160	160	320	12,000,000
P61	Vitrified HLW Interim Storage	3	250	240	490	19,000,000
P62A	Packaging and Loading Vitrified HLW at INTEC for Shipment to a Geologic Repository	3	10	10	20	750,000
P88	Vitrification with MACT	5	120	110	230	8,800,000
P133	Waste Treatment Pilot Plant	2	45	44	89	3,400,000
Peak Year Employment (2036)			340	330	670	26,000,000

Table 5.3-1. Summary of employment and income from disposition of facilities that would be constructed under the waste processing alternatives <sup>a,b</sup> (continued).

Number	Project description	Duration of disposition activity <sup>c</sup> (years)	Employment			Total earnings <i>(Dollars)<sup>d</sup></i>
			Direct <sup>e</sup>	Indirect	Total	
<b>Vitrification with Calcine Separations Option</b>						
P9A	Full Separations	3	220	220	440	17,000,000
P9C	Grout Plant	2.5	120	120	230	9,000,000
P13	New Storage Tanks	2	19	18	37	1,400,000
P18	New Analytical Laboratory	2	88	85	170	6,600,000
P24	Vitrified Product Interim Storage	2.8	31	30	61	2,300,000
P25A	Packaging and Loading Vitrified HLW at INTEC for Shipment to a Geologic Repository	<1	2	2	4	150,000
P35E	Grout Packaging and Loading for Offsite Disposal	2	30	29	59	2,300,000
P59A	Calcine Retrieval and Transport	1	160	160	320	12,000,000
P88	Vitrification with MACT	5	120	110	230	8,800,000
P133	Waste Treatment Pilot Plant	2	45	44	89	3,400,000
<b>Peak Year Employment (2036)</b>			<b>710</b>	<b>690</b>	<b>1,400</b>	<b>54,000,000</b>
a.	The EIS analyzes treatment of post-2005 newly generated liquid waste as mixed transuranic waste/SBW for comparability of impacts between alternatives. The newly generated liquid waste could be treated in the same facility as the mixed transuranic waste/SBW or DOE could construct a separate facility to grout the newly generated liquid waste.					
b.	HLW storage-related projects were eliminated from the peak year analysis because storage timing and durations are dependent on outside factors such as the completion of the national geologic repository. It would be difficult to form estimates based on these unknowns.					
c.	Source: Data from Project Data Sheets in Appendix C.6.					
d.	Source: IDOL (2002) presented in 2000 dollars.					
e.	Table presents bounding scenario for low-level waste fraction disposal.					
f.	Table presents the bounding scenario.					

CH = Contact-handled; CsIX = cesium ion exchange; FUETAP = formed under elevated temperature and pressure; HIP = hot isostatic press; LLW = low-level waste; MACT = maximum achievable control technology; NGR = National Geologic Repository; TRU = transuranic waste.

**Table 5.3-2. Summary of annual employment and income for disposition of the Tank Farm and bin sets by facility disposition alternative.<sup>a</sup>**

Facility	Annual employment and income (2000\$)	Facility disposition alternative				
		Clean closure	Performance-based closure	Closure to landfill standards	Performance-based closure with Class A grout disposal	Performance-based closure with Class C grout disposal
Tank Farm	Direct employment	280	20	12	11	49
	Indirect employment	270	19	12	11	47
	Total employment	550	39	24	22	96
	Total income	21,000,000	1,500,000	900,000	830,000	3,700,000
Bin sets	Direct employment	58	55	27	11	49
	Indirect employment	56	53	26	11	47
	Total employment	110	110	53	22	96
	Total income	4,400,000	4,100,000	2,000,000	830,000	3,700,000

a. Source: Data from Project Data Sheets in Appendix C.6.

**Table 5.3-3. Summary of annual employment and income for disposition of existing HLW management facility groups.<sup>a</sup>**

Facility	Annual employment			Annual income (2000\$)
	Direct	Indirect	Total	
Tank Farm-related facilities (ancillary facilities)	2	2	4	150,000
Bin set-related facilities (ancillary facilities)	<1	<1	<1	0
Process Equipment Waste Evaporator & related facilities	50	48	98	3,800,000
Fuel Processing Building and related facilities				
Performance-based closure	40	39	79	3,000,000
Closure to landfill standards	32	31	63	2,400,000
Fluorinel and Storage Facility and related facilities	54	52	110	4,100,000
Transport line group	3	3	6	230,000
New Waste Calcining Facility				
Performance-based closure	47	45	92	3,500,000
Closure to landfill standards	44	43	87	3,300,000
Remote Analytical Laboratory	7	7	14	530,000

a. Source: Data from Project Data Sheets in Appendix C.6.

As can be seen from the tables for existing facilities, the largest number of jobs would be required for Tank Farm Clean Closure (about 280 workers). The other scenarios would require relatively smaller numbers of workers and would in all cases be much fewer than the workers required for disposition *of* the proposed new facilities.

For both new and existing facilities, DOE would retrain and reassign workers to conduct disposition activities whenever possible (see Section 5.2.2). In some cases, skill mix and the number of personnel available may dictate a reduction in force. The number of workers affected would depend on the alternative selected and the timing. History has shown that such reductions are generally small. The current operational workforce for this mix of existing facilities is currently about 1,100 (Beck 1998). Following the completion of its operational and disposition missions, reductions in the number of jobs would probably occur unless new missions have been identified.

The potential impacts associated with population and housing, community services, and public finance would be the same as described for construction in Section 5.2.2.

### 5.3.3 GEOLOGY AND SOILS

Facility disposition activities would be carried out after HLW *management* facilities are no longer operational. Section 3.2 provides descriptions of the facility disposition alternatives being considered and explains how the various HLW *management* facilities would be closed. HLW *management* facilities would be decontaminated to the extent required by the selected alternative, then, depending on the facility disposition alternative selected and the facility in question, they would be entombed and left standing, partially removed, completely removed, or returned to (restricted) industrial use. Impacts to unique geologic features are not anticipated.

The Clean Closure Alternative could require the use of engineered caps for stabilized structures and the replacement of contaminated soil with topsoil for revegetation and backfill. The impacts of expanding existing INEEL

gravel/borrow pits were addressed in Section 5.6.2 of the SNF & INEL EIS (DOE 1995). New source development for soil for facility closures was evaluated in a separate National Environmental Policy Act document entitled the *Environmental Assessment and Plan for New Silt/Clay Source Development and Use at the Idaho National Engineering Laboratory* (DOE 1997).

Under Clean Closure, radioactive and hazardous constituents would be removed from the site or treated so that residual contamination is indistinguishable from background levels. This could require removal of all buildings, vaults, tanks, transfer piping, and contaminated soil. This alternative would require the largest quantity of soil for backfilling and would also require topsoil for revegetation.

Under Performance-Based Closure, most above-grade structures would be razed and most below-grade structures (tanks, vaults, and transfer piping) would be decontaminated, stabilized with grout, and left in place. This alternative would require some topsoil for revegetation but would require minimal amounts of soil for backfilling.

Under the Closure to Landfill Standards Alternative, waste residues within tanks, vaults, and piping would be stabilized with grout in order to minimize the release of contaminants into the environment. This alternative would require the use of an engineered cap to cover stabilized structures.

Under Performance-Based Closure with Class A Grout Disposal, facilities would be closed as described under the Performance-Based Closure Alternative, but following completion of these activities low-level waste Class A type Grout (produced under the Full Separations Option) would be disposed of in the Tank Farm and bin sets. This alternative would require some topsoil for revegetation but would require minimal amounts of soil for backfilling.

Under Performance-Based Closure with Class C Grout Disposal, facilities would be closed as described under the Performance-Based Closure Alternative, but following completion of these activities low-level waste Class C type Grout would be disposed of in the Tank Farm and bin